

#6

OIPE

RAW SEQUENCE LISTING

DATE: 07/19/2001

PATENT APPLICATION: US/09/788,188

TIME: 12:09:47

Input Set : A:\41673204.app

Output Set: N:\CRF3\07192001\I788188.raw

P.S

ENTERED

3 <110> APPLICANT: TUSZYNSKI, MARK
 4 BLESCH, ARMIN
 6 <120> TITLE OF INVENTION: MUTANT PRO-NEUROTROPHIN WITH IMPROVED ACTIVITY
 8 <130> FILE REFERENCE: 041673/2045
 10 <140> CURRENT APPLICATION NUMBER: 09/788,188
 11 <141> CURRENT FILING DATE: 2001-02-16
 13 <160> NUMBER OF SEQ ID NOS: 16
 15 <170> SOFTWARE: PatentIn Ver. 2.1
 17 <210> SEQ ID NO: 1
 18 <211> LENGTH: 241
 19 <212> TYPE: PRT
 20 <213> ORGANISM: Homo sapiens
 22 <400> SEQUENCE: 1
 23 Met Ser Met Leu Phe Tyr Thr Leu Ile Thr Ala Phe Leu Ile Gly Ile
 24 1 5 10 15
 26 Gln Ala Glu Pro His Ser Glu Ser Asn Val Pro Ala Gly His Thr Ile
 27 20 25 30
 29 Pro Gln Val His Trp Thr Lys Leu Gln His Ser Leu Asp Thr Ala Leu
 30 35 40 45
 32 Arg Arg Ala Arg Ser Ala Pro Ala Ala Ala Ile Ala Ala Arg Val Ala
 33 50 55 60
 35 Gly Gln Thr Arg Asn Ile Thr Val Asp Pro Arg Leu Phe Lys Lys Arg
 36 65 70 75 80
 38 Arg Leu Arg Ser Pro Arg Val Leu Phe Ser Thr Gln Pro Pro Arg Glu
 39 85 90 95
 41 Ala Ala Asp Thr Gln Asp Leu Asp Phe Glu Val Gly Gly Ala Ala Pro
 42 100 105 110
 44 Phe Asn Arg Thr His Arg Ser Lys Arg Ser Ser Ser His Pro Ile Phe
 45 115 120 125
 47 His Arg Gly Glu Phe Ser Val Cys Asp Ser Val Ser Val Trp Val Gly
 48 130 135 140
 50 Asp Lys Thr Thr Ala Thr Asp Ile Lys Gly Lys Glu Val Met Val Leu
 51 145 150 155 160
 53 Gly Glu Val Asn Ile Asn Asn Ser Val Phe Lys Gln Tyr Phe Phe Glu
 54 165 170 175
 56 Thr Lys Cys Arg Asp Pro Asn Pro Val Asp Ser Gly Cys Arg Gly Ile
 57 180 185 190
 59 Asp Ser Lys His Trp Asn Ser Tyr Cys Thr Thr Thr His Thr Phe Val
 60 195 200 205
 62 Lys Ala Leu Thr Met Asp Gly Lys Gln Ala Ala Trp Arg Phe Ile Arg
 63 210 215 220
 65 Ile Asp Thr Ala Cys Val Cys Val Leu Ser Arg Lys Ala Val Arg Arg
 66 225 230 235 240
 68 Ala
 72 <210> SEQ ID NO: 2
 73 <211> LENGTH: 241
 74 <212> TYPE: PRT

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/788,188

DATE: 07/19/2001

TIME: 12:09:47

Input Set : A:\41673204.app

Output Set: N:\CRF3\07192001\I788188.raw

75 <213> ORGANISM: Artificial Sequence

77 <220> FEATURE:

78 <223> OTHER INFORMATION: Description of Artificial Sequence: Mutant NGF

79 pro-neurotrophin

81 <400> SEQUENCE: 2

```

82 Met Ser Met Leu Phe Tyr Thr Leu Ile Thr Ala Phe Leu Ile Gly Ile
83   1           5           10           15
85 Gln Ala Glu Pro His Ser Glu Ser Asn Val Pro Ala Gly His Thr Ile
86           20           25           30
88 Pro Gln Val His Trp Thr Lys Leu Gln His Ser Leu Asp Thr Ala Leu
89           35           40           45
91 Arg Arg Ala Arg Ser Ala Pro Ala Ala Ala Ile Ala Ala Arg Val Ala
92   50           55           60
94 Gly Gln Thr Arg Asn Ile Thr Val Asp Pro Arg Leu Phe Lys Lys Arg
95  65           70           75           80
97 Arg Leu Arg Ser Pro Arg Val Leu Phe Ser Thr Gln Pro Pro Arg Glu
98           85           90           95
100 Ala Ala Asp Thr Gln Asp Leu Asp Phe Glu Val Gly Gly Ala Ala Pro
101           100          105          110
103 Phe Ser Arg Thr His Arg Ser Lys Arg Ser Ser Ser His Pro Ile Phe
104           115          120          125
106 His Arg Gly Glu Phe Ser Val Cys Asp Ser Val Ser Val Trp Val Gly
107           130          135          140
109 Asp Lys Thr Thr Ala Thr Asp Ile Lys Gly Lys Glu Val Met Val Leu
110 145          150          155          160
112 Gly Glu Val Asn Ile Asn Asn Ser Val Phe Lys Gln Tyr Phe Phe Glu
113           165          170          175
115 Thr Lys Cys Arg Asp Pro Asn Pro Val Asp Ser Gly Cys Arg Gly Ile
116           180          185          190
118 Asp Ser Lys His Trp Asn Ser Tyr Cys Thr Thr Thr His Thr Phe Val
119           195          200          205
121 Lys Ala Leu Thr Met Asp Gly Lys Gln Ala Ala Trp Arg Phe Ile Arg
122           210          215          220
124 Ile Asp Thr Ala Cys Val Cys Val Leu Ser Arg Lys Ala Val Arg Arg
125 225          230          235          240
127 Ala

```

131 <210> SEQ ID NO: 3

132 <211> LENGTH: 247

133 <212> TYPE: PRT

134 <213> ORGANISM: Homo sapiens

136 <400> SEQUENCE: 3

```

137 Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
138   1           5           10           15
140 Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
141           20           25           30
143 Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
144           35           40           45
146 Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
147           50           55           60

```

RAW SEQUENCE LISTING

DATE: 07/19/2001

PATENT APPLICATION: US/09/788,188

TIME: 12:09:47

Input Set : A:\41673204.app

Output Set: N:\CRF3\07192001\I788188.raw

```

149 His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
150 65 70 75 80
152 Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
153 85 90 95
155 Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
156 100 105 110
158 Tyr Lys Asn Tyr Leu Asp Ala Ala Asn Met Ser Met Arg Val Arg Arg
159 115 120 125
161 His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile
162 130 135 140
164 Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
165 145 150 155 160
167 Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
168 165 170 175
170 Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
171 180 185 190
173 Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
174 195 200 205
176 Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
177 210 215 220
179 Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
180 225 230 235 240
182 Leu Thr Ile Lys Arg Gly Arg
183 245
186 <210> SEQ ID NO: 4
187 <211> LENGTH: 247
188 <212> TYPE: PRT
189 <213> ORGANISM: Artificial Sequence
191 <220> FEATURE:
192 <223> OTHER INFORMATION: Description of Artificial Sequence: Mutant BDNF
193 pro-neurotrophin
195 <400> SEQUENCE: 4
196 Met Thr Ile Leu Phe Leu Thr Met Val Ile Ser Tyr Phe Gly Cys Met
197 1 5 10 15
199 Lys Ala Ala Pro Met Lys Glu Ala Asn Ile Arg Gly Gln Gly Gly Leu
200 20 25 30
202 Ala Tyr Pro Gly Val Arg Thr His Gly Thr Leu Glu Ser Val Asn Gly
203 35 40 45
205 Pro Lys Ala Gly Ser Arg Gly Leu Thr Ser Leu Ala Asp Thr Phe Glu
206 50 55 60
208 His Val Ile Glu Glu Leu Leu Asp Glu Asp Gln Lys Val Arg Pro Asn
209 65 70 75 80
211 Glu Glu Asn Asn Lys Asp Ala Asp Leu Tyr Thr Ser Arg Val Met Leu
212 85 90 95
214 Ser Ser Gln Val Pro Leu Glu Pro Pro Leu Leu Phe Leu Leu Glu Glu
215 100 105 110
217 Tyr Lys Asn Tyr Leu Asp Ala Ala Ser Met Ser Met Arg Val Arg Arg
218 115 120 125
220 His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser Ile

```

RAW SEQUENCE LISTING

DATE: 07/19/2001

PATENT APPLICATION: US/09/788,188

TIME: 12:09:47

Input Set : A:\41673204.app

Output Set: N:\CRF3\07192001\I788188.raw

```

221      130      135      140
223 Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met Ser
224 145      150      155      160
226 Gly Gly Thr Val Thr Val Leu Glu Lys Val Pro Val Ser Lys Gly Gln
227      165      170      175
229 Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr Thr
230      180      185      190
232 Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln Cys
233      195      200      205
235 Arg Thr Thr Gln Ser Tyr Val Arg Ala Leu Thr Met Asp Ser Lys Lys
236      210      215      220
238 Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys Thr
239 225      230      235      240
241 Leu Thr Ile Lys Arg Gly Arg
242      245
245 <210> SEQ ID NO: 5
246 <211> LENGTH: 257
247 <212> TYPE: PRT
248 <213> ORGANISM: Homo sapiens
250 <400> SEQUENCE: 5
251 Met Ser Ile Leu Phe Tyr Val Ile Phe Leu Ala Tyr Leu Arg Gly Ile
252 1      5      10      15
254 Gln Gly Asn Asn Met Asp Gln Arg Ser Leu Pro Glu Asp Ser Leu Asn
255      20      25      30
257 Ser Leu Ile Ile Lys Leu Ile Gln Ala Asp Ile Leu Lys Asn Lys Leu
258      35      40      45
260 Ser Lys Glu Met Val Asp Val Lys Glu Asn Tyr Gln Ser Thr Leu Pro
261      50      55      60
263 Lys Ala Glu Ala Pro Arg Glu Pro Glu Arg Gly Gly Pro Ala Lys Ser
264 65      70      75      80
266 Ala Phe Gln Pro Val Ile Ala Met Asp Thr Glu Leu Leu Arg Gln Gln
267      85      90      95
269 Arg Arg Tyr Asn Ser Pro Arg Val Leu Leu Ser Asp Ser Thr Pro Leu
270      100      105      110
272 Glu Pro Pro Pro Leu Tyr Leu Met Glu Asp Tyr Val Gly Ser Pro Val
273      115      120      125
275 Val Ala Asn Arg Thr Ser Arg Arg Lys Arg Tyr Ala Glu His Lys Ser
276      130      135      140
278 His Arg Gly Glu Tyr Ser Val Cys Asp Ser Glu Ser Leu Trp Val Thr
279 145      150      155      160
281 Asp Lys Ser Ser Ala Ile Asp Ile Arg Gly His Gln Val Thr Val Leu
282      165      170      175
284 Gly Glu Ile Lys Thr Gly Asn Ser Pro Val Lys Gln Tyr Phe Tyr Glu
285      180      185      190
287 Thr Arg Cys Lys Glu Ala Arg Pro Val Lys Asn Gly Cys Arg Gly Ile
288      195      200      205
290 Asp Asp Lys His Trp Asn Ser Gln Cys Lys Thr Ser Gln Thr Tyr Val
291      210      215      220
293 Arg Ala Leu Thr Ser Glu Asn Asn Lys Leu Val Gly Trp Arg Trp Ile

```

RAW SEQUENCE LISTING

DATE: 07/19/2001

PATENT APPLICATION: US/09/788,188

TIME: 12:09:47


Input Set : A:\41673204.app

Output Set: N:\CRF3\07192001\I788188.raw

```

294 225          230          235          240
296 Arg Ile Asp Thr Ser Cys Val Cys Ala Leu Ser Arg Lys Ile Gly Arg
297          245          250          255
299 Thr
303 <210> SEQ ID NO: 6
304 <211> LENGTH: 257
305 <212> TYPE: PRT
306 <213> ORGANISM: Artificial Sequence
308 <220> FEATURE:
309 <223> OTHER INFORMATION: Description of Artificial Sequence: Mutant NGF
310   pro-neurotrophin
312 <400> SEQUENCE: 6
313 Met Ser Ile Leu Phe Tyr Val Ile Phe Leu Ala Tyr Leu Arg Gly Ile
314   1          5          10          15
316 Gln Gly Asn Asn Met Asp Gln Arg Ser Leu Pro Glu Asp Ser Leu Asn
317          20          25          30
319 Ser Leu Ile Ile Lys Leu Ile Gln Ala Asp Ile Leu Lys Asn Lys Leu
320          35          40          45
322 Ser Lys Gln Met Val Asp Val Lys Glu Asn Tyr Gln Ser Thr Leu Pro
323          50          55          60
325 Lys Ala Glu Ala Pro Arg Glu Pro Glu Arg Gly Gly Pro Ala Lys Ser
326 65          70          75          80
328 Ala Phe Gln Pro Val Ile Ala Met Asp Thr Glu Leu Leu Arg Gln Gln
329          85          90          95
331 Arg Arg Tyr Asn Ser Pro Arg Val Leu Leu Ser Asp Ser Thr Pro Leu
332          100         105         110
334 Glu Pro Pro Pro Leu Tyr Leu Met Glu Asp Tyr Val Gly Ser Pro Val
335          115         120         125
337 Val Ala Ser Arg Thr Ser Arg Lys Arg Tyr Ala Glu His Lys Ser
338          130         135         140
340 His Arg Gly Glu Tyr Ser Val Cys Asp Ser Glu Ser Leu Trp Val Thr
341 145         150         155         160
343 Asp Lys Ser Ser Ala Ile Asp Ile Arg Gly His Gln Val Thr Val Leu
344          165         170         175
346 Gly Glu Ile Lys Thr Gly Asn Ser Pro Val Lys Gln Tyr Phe Tyr Glu
347          180         185         190
349 Thr Arg Cys Lys Glu Ala Arg Pro Val Lys Asn Gly Cys Arg Gly Ile
350          195         200         205
352 Asp Asp Lys His Trp Asn Ser Gln Cys Lys Thr Ser Gln Thr Tyr Val
353          210         215         220
355 Arg Ala Leu Thr Ser Glu Asn Asn Lys Leu Val Gly Trp Arg Trp Ile
356 225         230         235         240
358 Arg Ile Asp Thr Ser Cys Val Cys Ala Leu Ser Arg Lys Ile Gly Arg
359          245         250         255
361 Thr
365 <210> SEQ ID NO: 7
366 <211> LENGTH: 210
367 <212> TYPE: PRT
368 <213> ORGANISM: Homo sapiens

```


Use of n and/or Xaa has been detected in the Sequence Listing.
 Review the Sequence Listing to insure a corresponding
 explanation is presented in the <220> to <223> fields of
 each sequence using n or Xaa.

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/788,188

DATE: 07/19/2001

TIME: 12:09:48

Input Set : A:\41673204.app

Output Set: N:\CRF3\07192001\I788188.raw

L:535 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10

L:537 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10